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Proceedings of the Fifth Meeting of the Transboundary Resources Assessment Committee (TRAC)

Transboundary Assessment Working Group (TAWG) Meeting

23 – 25 April 2002

Conference Centre
St. Andrews Biological Station
St. Andrews, New Brunswick

Robert N. O'Boyle
Meeting Chairperson

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January 2003

Canada

Foreword

The purpose of this proceedings is to archive the activities and discussions of the meeting, including research recommendations, uncertainties, and to provide a place to formally archive official minority opinions. As such, interpretations and opinions presented in this report may be factually incorrect or mis-leading, but are included to record as faithfully as possible what transpired at the meeting. No statements are to be taken as reflecting the consensus of the meeting unless they are clearly identified as such. Moreover, additional information and further review may result in a change of decision where tentative agreement had been reached

Avant-propos

Le présent compte rendu fait état des activités et des discussions qui ont eu lieu à la réunion, notamment en ce qui concerne les recommandations de recherche et les incertitudes; il sert aussi à consigner en bonne et due forme les opinions minoritaires officielles. Les interprétations et opinions qui y sont présentées peuvent être incorrectes sur le plan des faits ou trompeuses, mais elles sont intégrées au document pour que celui-ci reflète le plus fidèlement possible ce qui s'est dit à la réunion. Aucune déclaration ne doit être considérée comme une expression du consensus des participants, sauf s'il est clairement indiqué qu'elle l'est effectivement. En outre, des renseignements supplémentaires et un plus ample examen peuvent avoir pour effet de modifier une décision qui avait fait l'objet d'un accord préliminaire

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ABSTRACT

The fifth meeting of the Transboundary Resources Assessment Committee (TRAC) was held during 23 – 25 April 2002 in St. Andrew's, New Brunswick, Canada and provided a forum for peer review of assessments for Georges Bank cod, haddock, and yellowtail flounder. These discussions produced Stock Status Reports for use in management for the 2002 fishing year.

RÉSUMÉ

La cinquième réunion du Comité d'évaluation des ressources transfrontalières (CERT) s'est tenue du 23 au 25 avril 2002 à St. Andrews (Nouveau-Brunswick), Canada. Elle a permis de procéder ensemble à un examen par les pairs des évaluations des stocks de morue, d'aiglefin et de limande à queue jaune du banc Georges. Les discussions ont débouché sur des Rapports sur l'état des stocks, qui serviront à la gestion de l'année de pêche 2002.

INTRODUCTION

The chair, R. O'Boyle, opened the meeting by greeting the participants (Appendix 1) and inviting them to introduce themselves. The meeting letter of invitation is presented in Appendix 2.

The chair noted that this was the fifth meeting of TRAC, the first one being in April 1998. The last assessment TRAC meeting was held in St. Andrew's during 17 – 20 April 2001. Since then, changes to TRAC to improve the quality of the peer review were discussed at the January 2002 Canada – US Scientific Discussions (NFSC Ref. Doc. 02-12) meeting. There, it was suggested and agreed to that the review of assessment frameworks or 'benchmarks' would be conducted separately from the review of the assessments themselves. It was noted that the haddock and yellowtail benchmarks were reviewed in 1998. That of 5Z cod was reviewed in February 2002. Further, there has been discussion between Canada and the USA on the establishment of a joint management process. This will have implications for the structure of TRAC. It has been agreed that until this process is finalized, the assessments would be done by the Transboundary Assessment Working Group (TAWG) separately for each country.

This meeting is the Canadian TAWG meeting to review the application of the 5Z cod assessment framework which would guide Canadian management during 2002/03 (Appendix 3). The equivalent US TAWG will be held sometime in the summer of 2002. It was emphasised that this is a biological review with no management issues being considered.

The products of this meeting would be Stock Status Reports to be presented to the Fisheries Resources Conservation Council (FRCC) in early May 2002, in time for its report to be provided to the DFO minister. Until these reports had been presented and made public, participants were told to consider the discussion of the meeting confidential.

R. O'Boyle outlined how the meeting would be conducted (Appendix 4). For the Proceedings, a rapporteur was assigned for each stock. The senior author of each working paper would present the results of the analyses, during which questions of clarification would be addressed. Following this, the floor would be opened to general discussion.

The list of documents tabled is given in Appendix 5 and the list of recommendations from the meeting in Appendix 6.

After points of clarification, the meeting commenced.

EASTERN GEORGES BANK COD

Working Paper: Hunt, J.J. 2002. Eastern Georges Bank Cod in 5Zejm Assessment Evaluation. TRAC Working Paper 2002/2.

Rapporteur: **Lei Harris**

Presenter: Joseph Hunt

Presentation Highlights:

Exploitation rate decreased from early 1990s levels and has been close to F0.1 since 1999. However, the Canada-US combined catches were up by 57% in 2001 at 3600t. Canadian landings have been dominated by fixed gear since the mid-1990s. Canadian landings account for 70 % of total in the area.

The cod quota has been limiting so there was concern that discarding would occur. There is 100% DMP coverage and high observer coverage. Based on a comparison of length distribution of at sea and land sampling, there was no strong evidence that discarding occurred. Port and at-sea sampling numbers correspond well to numbers caught, suggesting sampling effort reflects fishing effort and so the port samples should be representative of the fishery.

There is good correspondence between Canadian and US agers (n=214, 87% agreement). There is no consistent bias in the error. In 2001, over 35% of catch was age 3, twice what was projected. Less than 10% was age 6, which was one-third the projected amount, based on old assessment (using flat-topped partial recruitment). Partial recruitment has changed. This is likely due to changes in area and season. The new model would have given different projections.

Cod were found in similar areas as in the past in the DFO spring survey. Area 5Z2 accounts for most of survey biomass. There was a reduction in contribution from 5Z3 and 5Z4 (American zone) in recent years. There was a declining trend in weight at age in older age groups based on DFO spring survey data. Adult biomass increased 1995-2000 but has declined slightly since. Recruitment has been low since the 1995 and 1996 year-classes.

There has been an increasing trend in the longline survey since 1999. This survey was not used in the assessment.

Based on the benchmark review, the assessment was based on Adapt using 1978-2002 data. Access to the larger fish has been reduced since 1999. A dome-shaped partial recruitment was used.

Recommendations from 2001 TRAC:

- Recommended for the fourth consecutive year, an ageing workshop should be held at the earliest opportunity, and definitely during the year 2001.

There still has not been an ageing workshop. According to intra- age comparisons among agers, correspondence is good. This is likely due to the current high level of interaction between agers. The workshop should be held when it can be fit in.

- The TAWG examine the PR function temporally for 5Zj,m cod and determine an appropriate method for calculating the corresponding terminal F's in the event that a shift in the PR from the current flat-top model to a dome model be warranted in 2001; TAWG should also recalculate the value of F0.1 under any shift in the PR.

- Done. Had benchmark meeting. The decision was to apply the observed partial recruitment in the recent fishery for catch projection in 2002, but to leave the calculation of F0.1 based on the long-term asymptotic pattern in partial recruitment. Recent changes in fishing patterns may not continue or reflect the long-term exploitation pattern expected for this cod stock.

- The TAWG analyze the observed decline in age of first maturity in this stock to: (1) verify the occurrence of the decline, and (2) hypothesize why this might be occurring (i.e., as a stock affect, and/or an artifact of restricted survey observations from only spawning fish). It is also recommended that stock condition factors for selected ages be included in the 2002 stock assessment to supplement stock status indicators and to substantiate apparent decline in age of first maturity.

Age at maturity- no further work has been done. The sample sizes from the 1 and 2yr olds has been low because recruitment has been low. A 3-year average from maturity ogives was used for estimating SSB. Interannual variation is high. That is why an average is used. Work on maturity at age should continue.

The decline in age at first maturity does not appear to be an artefact of the survey. Further research is recommended.

The observed maturity of age 2 in 2002 has decreased. For next assessment compare Canadian vs. US age at maturity.

- Available spatial-temporal ecosystem and environmental information be matched with corresponding spatial-temporal data on juvenile and adult cod dynamics on and around Georges Bank to help make a better connection between available environmental data and stock assessment results.

Ecosystem stuff - Was not done.

- The TAWG establish: (1) estimates for long-term targets and (2) lower limit thresholds for Georges Bank cod stock biomass based on historical data and biological rationale.

Intent was to look this spring benchmark. Did not have enough time. It is being considered in TMGC.

- Statistics on the relative proportions of the 5Zj,m cod stock biomass on the Canadian and American sides of the Hague Line continue to be produced as part of future stock assessments.

Done. TMGC has come to agreement on formula for calculating biomass distributions.

Discussion:

The Fishery

Environmental information will be added to SSR.

Where did US fishery take place? Area was small for 13000 tones.

- Fishing is in NW corner of area. Fewer cod was seen in survey in that area. This is due to effort, there haven't been survey sets there in last few years.

The fishing distribution looks wrong. Longliners would not be fishing on the bank less than 50 fathom because of the skates and other by catch.

- Location data are not that accurate. There is only one entry per day, which may represent several sets. The CPUE and distribution data are not used in the assessment.

It appears that the gill-netters did not catch age 5 fish according to the catch at age data. This should be checked. Could be a graphing error.

Has US sampling increased?

- It is still somewhat deficient though it has improved.

The number of larger older cod seems to be decreasing as haddock catch increases. This is because haddock, and not cod, are targeted. They are still there but the fishing is in a different area. This is consistent with the dome shaped partial recruitment. The bigger cod have become less available to the fishery.

The quotas are not proportional to what is caught.

Increase in biomass in DFO spring survey and industry longline survey, why is biomass said to decrease?

- All increase in survey biomass is due to growth not recruitment. Most of the growth was taken out in the fishery. There was no recruitment so the biomass decreased overall.

In mobile gear fleet many used horizontal panels in their nets to exclude cod.

Resource Status

We are seeing proportionally more older fish in the survey than in the commercial catch.

Industry is concerned about absence of 0, 1, 2 year-classes in the survey. Can other research be done?

- ITQ survey catches far more age 1 than the *Needler* survey. US spring survey catch of small fish corresponds well to year-class strength. There is high-grading, misreporting making catch data of questionable value for VPA.

In benchmark meeting, we said we should look at survey q's to see if they are flat topped. It doesn't make sense for survey q to keep increasing.

What is the use of longline survey if we can't use it in the assessment. Will we use it? Can we improve it?

- It was included in some trial adapt runs. However, there is concern about the smaller spatial coverage. There is uncertainty as to how this would affect trends.
- There have been changes in gear during this survey.
- It could be used to see if catch composition is different when long liners targeting cod or haddock.
- Length frequencies of ll survey and ll commercial catch were compared and there wasn't a difference.

Age composition is improving but it is comparable to age composition in the earlier years when fishing was at approximately F=0.4.

Recalculation of spawning stock biomass (Table 10), in the past, the age at maturity was averaged over 3 years for estimating spawning stock biomass. This is to minimise effects of variability of age at maturity. Should we included first time spawners since it is not clear how much they contribute, are they successful? Should we then use a knife-edge for age at maturity?

- The difference between the two methods is more a matter of scaling. If we use changing maturities all the time, the target biomass will change as well. Maybe it's easier to use constant maturity, use 3+ as a proxy for spawning biomass. Age 3s are generally over 90% mature over time. Recommended using 3+.

It was suggested by industry that misreporting has increased over time. It is thought that misreporting has been on the rise over the last 3 years (1999-2001). Last year was bad. Misreporting is not thought to have been a problem before 1999. Misreporting is area based, not discarding according to industry. Although there is 100% DMP there can be vessels that don't hail out or hail in and then don't get monitored. It is recommended that a sensitivity analysis be done. Use same proportion catch at age, from 1998=0 to 2001=500 tonnes, increasing linearly. Examine at spawning stock biomass and exploitation rate in the working paper.

EASTERN GEORGES BANK HADDOCK

Working Paper: Gavaris, S., and L. Van Eeckhaute. 2002. Assessment of Haddock on Eastern Georges Bank. TRAC Working Paper 2002/4.

Rapporteur: Michael Power

Presenter: Stratis Gavaris

The eastern Georges Bank haddock stock assessment was presented by S. Gavaris. The comments below summarize the main points of discussion that followed the presentation.

Recommendations from 2001 TRAC:

- The TAWG discuss a framework for addressing discard estimation (methods to examine discards problems).

Discard problems estimation: little indication of discarding or hygrading; this problem was mainly in relation to US trip limits which now have been increased and not considered a factor any more.

- The "condition" or "plumpness at age" for haddock be evaluated for trends that might indicate changes in the health of the stock.

Condition factor analysis; in progress; noted decline in all weight at age this past year; will be looking at it before next benchmark.

- The use of iterative re-weighting of tuning indices be examined for the next benchmark assessment.

Use of iterative reweighting of indices; postponed to next benchmark.

- Variability in estimates of fishery-dependent catch rates be expressed.

Fishery dependant catch rates; not used and don't plan to do.

- The use of industry based long line survey as a tuning index in the benchmark assessment be examined.

Industry based longline indices; does not cover stock area so not suitable as an index; may be useful for trends in Canadian zone.

- The DFO spring survey's maturity stage observations to detect whether a warming trend in water temperature impacts the timing of haddock spawning be examined.

Warming trend affects maturity and timing of spawning; not done but will be explored and collaborate with US colleagues

Discussion:

The Fishery

Observer vs. fishery length frequency data looks unexpected with more small fish in fishery data. Overall looks ok but differences may be due to sampling variation and areas/months not quite the same.

Some work on round to gutted has been done.

Resource Status

Assumption of m=0.2 is used consistently throughout the assessment. No indication in retrospective or other features that there is a problem using this value. Strong 2000yc was also widespread in the spring DFO survey to the west. Survey strategy will be reassessed to avoid gaps in coverage (this year on US side in 5Zj). Will look at average length at age in relation to wt at age/condition factor question.

Fall survey catchability for older ages; abundance in older ages dropped off; possible lack of availability in the fall

Why are cod & haddock so different in similar environment? Partly due to growth rate & fecundity at age peaks at younger age for haddock (approximately age 6-7) while cod is much older. More of a chance for good recruitment at low biomass for haddock than for cod. Life history trends may be useful to look at. Change in survivorship in recent years is unexplained. (Loretta will try to present overview on this.)

Noted that 2002 biomass has pushed SSB into the next level or regime where good recruitment is more the norm.

Basically the benchmark assessment with another year of data. Good residuals and results

Used fishery weights at age and recent year survey weights at age in projection which may be conservative values. May need to adjust PR with increasing spread in catch at age that is occurring.

GEORGES BANK (5Zjmnh) YELLOWTAIL FLOUNDER

Working Paper: Stone, H.H. 2002. Stock Assessment of Georges Bank (5Zjmnh) Yellowtail Flounder for 2002. TRAC Working Paper 2002/7.

Rapporteur: Peter Perley

Presenter: Heath Stone

Recommendations from 2001 TRAC:

Prior to discussion, it was asked if the recommendations of the 2001 TRAC were met.

- Both DFO Science and industry be encouraged to make better use of the opportunity to review and synthesize fishery information. A complete summary of the year's fishing activity should be feasible.

This was not accomplished; there is however a "verbal" report from industry stating a decline of catch rates and that there was more variety of species in the catches in 2001.

- The next benchmark assessment for yellowtail flounder be conducted after the yellowtail flounder ageing program by DFO has been established, the results verified and used to age the Canadian data (from TAWG discussion)

Some progress has been made on the ageing of yellowtail and will be forthcoming as a research document.

Discussion:

<u>The Fishery</u>

Landings for June 2001 were discussed and it was noted that these landings (37 t) originated as bycatch from the haddock fishery. It was noted that there were more skates and summer flounder caught at the beginning and end of the fishery this year and the consensus was that this was due to the warmer temperatures on the bank than in previous years.

The question of sampling came up with regards to observer versus port sampling. Observer samples from September showed a very high peak for males while August

samples showed no difference in length between males and females. This was attributed to the high turnover rate of personnel and lack of training.

This brought up the discussion of discarding, one suggestion was to lump the sexes together to see if discarding was occurring. Upon looking at the graphs it was noted that if discarding was not occurring than there would not be fish less than 30 cm. Also noted was that the sex ratio changes through out the fishing year, males more predominant at the beginning of the year as well as at the end. It was noted that 4th quarter sampling from the US fishery was poor – with very few samples. It was noted during the discussion that flounder prices were depressed all year and the US fishing fleet were fishing along the edge of Closed Area II. It was noted that yellowtail bycatch in the US offshore scallop fishery was minimal for 2001 since there was no scallop exemption fishery in Closed Area II. A report on yellowtail bycatch in the Canadian offshore scallop fishery that was recommended by the FRCC in 2000 and 2001 highlighting the scallop by catch was not received at this meeting.

Resource Status

Industry stated that the yellowtail resource is not in good shape pointing out that the catch rates in the Yellowtail Hole are low. It was noted that distribution by ages was not done but the distribution by length on both sides of the Hague Line (Closed Area II and the Yellowtail Hole) indicated that large fish were in the same areas as the small fish. Discussion on weight length noted that there was not much difference above 40cm and this could be attributed to under ageing.

Outlook

The VPA was discussed and it was noted that there was a strong retrospective pattern of underestimating F and overestimating the abundance of older (Age 5) fish. The pattern is not as pronounced when 3+ biomass is used, but there is still a tendency for recent estimates 3+ biomass to be overestimated. It was noted that there is a general consistency in the ageing from year to year, but we are unable to track strong or weak year classes very well, which could indicate a problem with sampling. There may also be some smearing across ages which could distort relative year class strengths. Research surveys provide evidence of relatively high abundance for younger age groups (Ages 2-4). There was discussion on the current population age structure and the fact that reduced exploitation in recent years should result in more older fish being present in the population. A comparison of proportions at age for the population in 2001 with the population under equilibrium conditions shows that the proportion of older fish (Age 6+) appears to be increasing.

DISTRIBUTION, ABUNDANCE AND MORPHOLOGY OF THE DEEP-WATER GORGONIANS *PARAGORGIA ARBOREA* AND *PRIMNOA RESEDAEFORMIS* IN THE NORTHEAST CHANNEL, NOVA SCOTIA

Working Paper: None

Rapporteur: Maria Buzeta

Presenters: Pål Mortensen and Lene Buhl-Mortensen
Marine Environmental Sciences Division
Bedford Institute of Oceanography
PO Box 1006, 1 Challenger Drive, Dartmouth, NS B2Y 4A2
Canada

Presentation Highlights:

The distribution, abundance, size and shape of the deep-water gorgonian corals Paragorgia *arborea* and *Primnoa* resedaeformis were investigated along 38 transects in the Northeast Channel, using a Remotely Operated Vehicle, and a towed video-camera system. Paragorgia and Primnoa were observed at respectively 16 and 23 localities, and their highest densities were 4.9 and 10.4 colonies per 10 m2. The maximum height of Paragorgia and Primnoa colonies was 170 and 80 cm respectively. The height of Paragorgia seems to be controlled by the size of boulders. Paragorgia occurred in three colour varieties: red, salmon red, and white. Red and white Paragorgia were equally common while the salmon red variety was less frequent. These varieties showed a different size distribution with salmon red being largest. The concave side of Paragorgia's fan shaped colonies faced the observed direction of water-flow and indicates the local main currents. The bush shaped Primnoa did not reflect the current direction to the same degree as Paragorgia, but mainly occurred on the up-current side of boulders. The different height and morphology of the two coral species indicate that they may use different food source.

Discussion:

- Stone Fence is a good coral area, rugged topography, and many channels.
- Associated Fauna- Redfish associated closely but not too many other finfish. However, in boulder areas where corals are found, you also find more fish than in other areas. No correlation analysis performed yet.
- Some sites are (coral) species rich, why the difference? This is not due to difference in methods or effort. Probably the range of habitat and physical environment. The NE channel area where the seabed can have corals has very strong currents, and corals are below a certain depth. The Gully is all canyons and channels. Hydrographic conditions are important.

- The Groundfish Management Plan includes the Ecosystems Objective "Protecting benthic communities from disturbance".
- With the agreement from industry, the area at mouth of channel is closed.
- At round table working group - observer data showed they were further into Fundian channel and into Bay of Fundy.
- All observer data is shown in those maps (the map shown was cropped and did not show Fundian Channel or Bay of Fundy).
- There is a proposed area to be put aside. That area corresponds with that shown in the abundance map, and includes Romneys Peak. The area in dispute is the 5Z portion of the proposal. Industry assumes there is more coral in deeper water, so they are not adverse to moving the closed area deeper.
- There are 700+ tons that come from that area.
- Is there a lot of gear lost in that area? It's fixed gear in that area, not mobile gear. That area is the only one where you can get a better ratio of haddock to cod.
- Is this an area you don't want to be with your gear? It's the boulders, not the corals that destroy gear.
- There are areas that have been cleared of boulders.
- It is not a problem to close an area for coral, but that location is where the fish are.
- The best location for a closed area for coral would be to follow the depth contour, but it is too difficult to manage.
- Is there a control/undisturbed area? There are locations where the number of impacted corals is zero, but we don't have an area (delineated).

COMPARISON OF GEORGES BANK COMMERCIAL FISHERY SPECIES COMPOSITION FROM TWO SOURCES: OBSERVER DATA AND LANDINGS (LOG BOOK) DATA

Working Paper: None

Rapporteur: R.K. Smedbol

Presenters: Lou Van-Eeckhaute and Stratis Gavaris

Presentation Highlights:

This working paper compared catches reported in two sources: unobserved landings from fishers' log books, and the Observer program database, with the purpose of determining whether possible differences in reported catches between the two data sources could be attributed to discarding.

In the analysis, Georges Bank was divided into 8 zones, with the placement of boundaries based on the distribution of fishing of fishing effort (locations of trawl tows). Analyses were split by gear type, vessel tonnage class, year and quarter of fishery.

Discussion:

One major point of discussion was the possible effect on the comparisons of the use of separator panels on gillnets by some fishers. For instance, the use of separator panels allow fishers to fish new grounds by reducing cod by-catch. The working group was unsure as to whether it was possible to detect or identify these possible effects, given the limitations of the data. The authors would require information on which particular boats fished the modified gear.

The point was made that this study actually detects discrepancies in the composition of the catch reported in the two datasets, and that these discrepancies cannot be directly attributed to discarding with this preliminary analysis

The question was raised as to whether the relative percent composition of cod in the catch might be influenced by the discarding of other species. Industry representatives felt that only cod was likely to be discarded, since there was no incentive for the discarding of other species. Therefore the percentage of cod in the data record was not likely to be affected by discarding of other species

It was suggested that the authors try selecting out zones that are relatively data rich, and base subsequent comparisons on these areas.

BENTHIC COMMUNITY AND HABITAT

Rapporteur: R. Kent Smedbol

Presenter: Stratis Gavaris

Presentation Highlights:

This working paper presented preliminary efforts in estimating the area of bottom directly effected by trawling in the geographic area of Georges Bank under Canadian jurisdiction. The analysis uses sets reported in the Observer database.

Discussion:

The analysis incorporates several important assumptions, and the analysis suffers somewhat from the limitations of the data. One such limitation is that the number of tows reported in the Observer database is much lower than the total number of tows undertaken in the commercial fishery. As a result, the degree of spatial overlap of tows calculated from the Observer data is an underestimate of the true degree of overlap of commercial sets. Greater Observer coverage is needed to be able to effectively model the rate of change in overlap with additional tows.

One point of discussion was the relative importance of the frequency or rate disturbance on recovery from trawling, versus the general effect due to total area swept/disturbed. For instance, some tracks may be towed several times a year, while other areas receive little disturbance (less than once per year).

The analysis accounted for differing physical impacts from trawl doors, foot gear, and bridles/warp. In response to questioning the presenter pointed out that typically about 1% of the total bottom area is disturbed by trawl doors. Accurate estimates of area disturbed by each tow would require accurate reporting of the actual tow path across the bottom, as well as start and end points.

INCIDENTAL MORTALITY ON NON-TARGET SPECIES IN THE GEORGES BANK GROUNDFISH FISHERY

Working Paper: Gavaris, S., H. Stone, L. Van Eeckhaute, and L. Harris. 2002. Incidental Mortality on Non-Target Species in the Georges Bank Groundfish Fishery. TRAC Working Paper 2002/5.

Rapporteur: John Neilson

Presenter: Stratis Gavaris

S. Gavaris provided an overview of the working paper.

It was noted that in the mobile gear fleet, there is provision for bycatch (percentage) for monkfish, and other flatfish. For the Working Paper it was clarified that the species included in this analysis include those bycatch species managed on a biomass basis only (white hake, cusk, dogfish and catfish).

There was clarification of the geographic basis of the bycatch caps. There are no limits that apply specifically to 5Z.

Large otter trawlers have much lower bycatch, but it was noted that the area fished may differ (more off bank). Large otter trawlers also use separator trawls routinely.

Witch flounder co-occur with monkfish, and could be considered a directed bycatch within the 20% limit. For those that do not have yellowtail, there is a bycatch provision as well. It was noted that in case of the yellowtail, incidental catches would still be included in the overall landings. There is very little incidental bycatch in the small mobile gear fishery – most of the fishery is directed within the bycatch limits. In the absence of the percentages, there would less catch of those species.

Catfish are a truly an incidental species, with no direction. It was clarified that "catfish" are striped Atlantic wolffish.

The possibility of misreporting location of incidental flatfish was discussed, but the extent of this problem is unknown.

The species included in Table vary in their current status, with some COSEWIC species listed. It could be that the impact of incidental mortality is likely among the various class of species listed in Table 1. The authors responded that the fisheries is one aspect of the overall impact on species.

It was recognized that this analysis represents a good initial step. It was noted that the incidental catch is not large in terms of volume. However, the small fraction may be important. Within the species list in Table 1, some of these may receive special

designation by COSEWIC in addition to those already identified. Incidental mortalities could be even less with certain fishing practices.

It was questioned how observers get an estimate of discards. This is provided by a visual summary of the catch on deck, and includes "shacked-off" fish.

It was noted that a larger percentage of cusk landings from 4X+5 is coming from Georges Bank, and may be a concern. It is thought that some boats are actually directed for cusk in the deep water areas.

For sharks, it was noted that much of the releases appear to be alive. Turtles were specifically mentioned, and very few occurrences on Georges Bank.

The possible use of diversity indices to compare among the fleets was discussed. It was responded that the science provided should be relevant to the management actions that are feasible. The Conservation Harvesting Plan notes that you are not allowed to increase traditional limits, for those fisheries approaching limits, they are not allowed to direct for additional species. All groundfish caught must be landed, but pelagics and marine mammals must be released.

The need for issuing incidental harm permits may be forthcoming in the near future. Analyses such as done here may be required for the issuing of such permits.

Question of the utility of the distribution maps was questioned, given the age of the data. The fishing information in particular is suspect, but the Halliday information seems useful to include.

There was a question of the utility of the survey for cusk., given the low numbers of fish caught. The longline survey on Georges Bank may offer some promise as an indicator of trends of cusk abundance.

Appendix 1. List of Participants

Participant	Affiliation/Address	Telephone	FAX	E-Mail
Donald Clark	MFD/DFO, St. Andrews, N.B.	(506) 529-5908		Clarkd@mar.dfo-mpo.gc.ca
Claude d'Entremont	Inshore Fisheries Ltd., N.S.	(902) 762-2522	(902) 762-3464	Inshore@inshore.ca
Jean Guy d'Entremont	FRCC/Ottawa	(902) 762-2522	(902) 762-3464	Jean.guy@ns.sympatico.ca
Stratis Gavaris	MFD/DFO, St. Andrews, N.B.	(506) 529-5912		Gavariss@mar.dfo-mpo.gc.ca
Jorgen Hansen	RMB/DFO, Dartmouth, N.S.	(902) 426-9046		Hansenj@mar.dfo-mpo.gc.ca
Lei Harris	MFD/DFO, St. Andrews, N.B.	(506) 529-5838		Harrisle@mar.dfo-mpo.gc.ca
Bette Hatt	MFD/DFO, St. Andrews, N.B.	(506) 529-5920		Hattb@mar.dfo-mpo.gc.ca
Joseph Hunt	MFD/DFO, St. Andrews, N.B.	(506) 529-5893		Huntjj@mar.dfo-mpo.gc.ca
Allyson Jordan	Boat Manager, USA	(207) 253-1848	(207) 253-1858*51	Ajordan3@maine.rr.com
Jason Leavitt	Fisherman, USA	(207) 885-9888		Gull_crest_trawlers.com
John Neilson	MFD/DFO, St. Andrews, N.B.	(506) 529-5913		Neilsonj@mar.dfo-mpo.gc.ca
Tim Nickerson	SFIFA Fishermen, N.S.	(902) 768-2535	(902) 768-2259	
Robert O'Boyle (Chair)	RAP/DFO, Dartmouth, N.S.	(902) 426-3526	(902) 426-5435	Oboyler@mar.dfo-mpo.gc.ca
Loretta O'Brien	NMFS/NEFSC, Woods Hole, USA	(508) 495-2273		Loretta.obrien@noaa.gov
Peter Perley	MFD/DFO, St. Andrews, N.B.	(506) 529-5928		Perleyp@mar.dfo-mpo.gc.ca
Mike Power	MFD/DFO, St. Andrews, N.B.	(506) 529-5881		Powermj@mar.dfo-mpo.gc.ca
Mark Showell	MFD/DFO, Dartmouth, N.S.	(902) 426-3501		Showellm@mar.dfo.mpo.gc.ca
R. Kent Smedbol	MFD/BIO, St. Andrews, N.B.	(506) 529-5976		Smedbolk@mar.dfo-mpo.gc.ca
Rob Stephenson	MFD/BIO, St. Andrews, N.B.	(506) 529-5882		Stephensonr@mar.dfo-mpo.gc.ca
Heath Stone	MFD/DFO, St. Andrews, N.B.	(506) 529-5880		Stoneh@mar.dfo-mpo.gc.ca
Lou Van Eeckhaute	MFD/DFO, St. Andrews, N.B.	(506) 529-5938		Van-eeckhautel@mar.dfo-mpo.gc.ca
Evan Walters	SFIFA Fishermen, N.S.	(902) 637-3276	(902) 637-3270	Sfifa@klis.com

Appendix 2. Letter of Invitation

Fisheries and Oceans / Pêches et Océans
Maritimes Regional Advisory Process
Bedford Institute of Oceanography, P.O. Box 1006
Dartmouth, Nova Scotia, B2Y 4A2
Tel. (902) 426-3526 / Fax. (902) 426-5435
e-mail: oboyler@mar.dfo-mpo.gc.ca

5 April 2002

Distribution

Dear Participant:

You are cordially invited to attend the Spring 2002 meeting of the Transboundary Assessment Working Group (TAWG), to be held in St. Andrews, New Brunswick, Canada during 23-25 April 2002. This is one of a series of meetings initiated in 1998 to provide joint peer review of assessments for resources shared by both Canada and the USA. This year, the TAWG will consider assessments for Georges Bank cod, haddock, and yellowtail flounder. As well, the meeting will consider evaluations of ecosystem considerations for the Canadian fisheries on eastern Georges Bank. Results will be reported to management agencies.

Terms of reference, a draft agenda and a list of invitees are attached.

The meeting will be held in the Conference Centre, Biological Station, St. Andrews. If you need directions, check with the receptionist in the main building. We would like to begin the meeting promptly at 08:30 am, Tuesday, April 23rd , so please plan accordingly.

Please let me know at your earliest convenience if you will be attending (902 426-7070 or myrav@mar.dfo-mpo.gc.ca). If you have any questions, feel free to contact me at (902-426-7070).
I look forward to seeing you in St. Andrews.

Sincerely,

Original Signed by:

R.N. O'Boyle

Attachments (3)

cc: Michael Sissenwine
Michael Sinclair

Canada

Appendix 3. Meeting Remit

Remit
Transboundary Assessment Working Group
Conference Centre, St. Andrew's Biological Station
23 – 25 April 2002

Stock Assessments

For the following resources:

Eastern Georges Bank Cod (5Zjm)
Eastern Georges Bank Haddock (5Zjm)
Georges Bank Yellowtail (5Zjmnh)

- Using the benchmark assessments, report on the status of the stocks, updating results for the latest information from fisheries and research surveys and characterize the uncertainty of estimates.

- For a range of yield quotas in 2002, evaluate the consequences on exploitation rate in 2002 and on spawning stock biomass (or its proxy) in 2003.

- Estimate the probability that the 2002 fishing mortality rate would exceed $F_{0.1}$ and that the spawning stock biomass in 2003 would not achieve a 0%, 10% and 20% increase compared to 2002, for a range of yield quotas in 2002.

- Report on progress against research recommendations made at the 2001 TRAC.

Other Business

- Describe the occurrence and distribution of corals on the Canadian portion of Division 5Z.

- Evaluate a comparative analysis of landed versus observed species composition for the Canadian fisheries on Georges Bank.

- Investigate incidental mortality on non-traditional species for the Canadian fisheries on Georges Bank.

- Assess the amount of bottom trawled for the Canadian fisheries on Georges Bank.

Appendix 4. Meeting Schedule

Agenda
Transboundary Assessment Working Group
Conference Centre, St. Andrew's Biological Station
23 – 25 April 2002

23 April 2002 – Tuesday

08:30 – 09:00	Welcome and Introduction
09:00 – 09:30	Overview of Georges Bank fishery objectives, strategies and measures
09:30 – 12:00	Cod 5Zjm
12:00 – 13:00	Lunch
13:00 – 15:30	Haddock 5Zjm
15:30 – 16:30	Coral occurrence and distribution

24 April 2002 – Wednesday

08:30 – 11:00	Yellowtail Flounder 5Zhjmn
11:00 – 12:00	Incidental mortality on non-traditional species
12:00 – 13:00	Lunch
13:00 – 15:00	Comparative species composition analysis
15:00 – 16:00	Habitat trawled
16:00 – 17:00	Other matters

25 April 2002 – Thursday

08:30 – 10:00	Report Preparation
10:00 – 12:00	Further analyses and discussion
12:00 – 13:00	Lunch
13:00 – 17:00	Report Review
17:00	Adjournment

Appendix 5. List of Documents Tabled

Gavaris, S., and L. Van Eeckhaute. 2002. Assessment of Haddock on Eastern Georges Bank. TRAC Working Paper 2002/4.

Gavaris, S., H. Stone, L. Van Eeckhaute, and L. Harris. 2002. Incidental Mortality on Non-Target Species in the Georges Bank Groundfish Fishery. TRAC Working Paper 2002/5.

Hunt, J.J. 2002. Eastern Georges Bank Cod in 5Zejm Assessment Evaluation. TRAC Working Paper 2002/2.

Stone, H.H. 2002. Stock Assessment of Georges Bank (5Zjmnh) Yellowtail Flounder for 2002. TRAC Working Paper 2002/7.

Appendix 6. List of Recommendations

Eastern Georges Bank Cod

It is recommended that a sensitivity analysis be done. Use same proportion catch-at-age, from 1998=0 to 2001=500 tonnes, increasing linearly. Examine at spawning stock biomass and exploitation rate in the working paper.

It is recommended that Mortensen's maps of coral abundance and diversity from campod data be included.

Eastern Georges Bank Haddock

Nil

Georges Bank (5Zjmnh) Yellowtail

Nil

Distribution, Abundance and Morphology of the Deep-Water Gorgonians *Paragorgia arborea* and *Primnoa resedaeformis* in the Northeast Channel, Nova Scotia

It is recommended that the report should also have the 5Z landings data for the area inside the coral box. Also need to look at the observer data to see which ones are in the box.

Comparison of Georges Bank Commercial Fishery Species Composition from Two Sources: Observer Data and Landings (Log Book) Data

It was recommended should try selecting out zones that are relatively data rich, and base subsequent comparisons on these areas.

Benthic Community and Habitat

It was recommended trying to calculate the area that is not disturbed (annually).

Incidental Mortality on Non-Target Species in the Georges Bank Groundfish Fishery

Nil